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COMPETITIVE EFFECTS OF LOW TRADE BARRIERS: EVALUATIONS FOR THE KALININGRAD REGION

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International trade is an important factor affecting competition in domestic markets. Considering the vastness of Russian territory, one can expect the pro-competitive effect to vary from region to region. This analysis tests the hypothesis that the unique geographical position and economic status of the Kaliningrad region contribute to the rapid development of international trade, which, in turn, exerts competitive pressure on regional prices.

The study incorporates two major lines of analysis: a) a comparison of the international trade growth rates of different Russian regions; b) an assessment of the influence of Russian and European prices on the consumer price index as well as prices for particular tradable goods in the Kaliningrad region. Rosstat and Eurostat serve as the main data sources. To test their hypothesis, the authors use the methods of statistical and econometric analysis.

The status of the free economic zone and unique geographic position of the Kaliningrad region do not result in high growth rates of international trade in the region, but rather lead to a structural shift towards import thus exerting additional competitive pressure on domestic prices. The analysis did not confirm the hypothesis about the considerable influence of European prices on the short run dynamics of the regional consumer prices index or prices for certain imported goods. Nevertheless, indirect evidence of competitive effects of foreign trade was found in the course of a comparative analysis of price levels in the regions of the North-West Federal district: the cost of the standard set of consumer goods and services in the Kaliningrad region is lower than the level defined by the regional per capita income.

Key words: Kaliningrad region, free economic zone, international trade, competition, prices

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1. Trade barriers as an instrument of competition policy

Traditionally, two key elements are identified within competition policy — protective and active measures, — each

of which has a special function and supplements the other. In the case of protective measures, public policy places special emphasis on preventing a decrease in the level of competitive interaction in the markets where it is present. This objective is achieved predominantly through a system of limitations imposed on the acceptable directions of transformation of the market structure (first of all, control over economic concentration) and behaviour of economic agents (abuse of a dominant position, coordination of activities, etc.). Control over the observation of such limitations is the major function of the Russian anti-trust authority — the Federal Antimonopoly Service. Effectual measures of competition policy are more diverse and include a broad range of initiatives aimed to develop competitive interactions in the markets where they are lacking, including those aimed at the development of new businesses, deregulation of natural monopolies, lowering of administrative barriers hindering access to new markets, and many others¹. Effectual competitive policy measures also include restrictions on the system of foreign trade, which affects the intensity of international competition as a factor of structural changes in national industrial markets.

The results of the modelling of international trade effects in the conditions of imperfect competition for both homogenous [6; 10] and differentiated [9; 15] goods indicate that the liberalisation of foreign trade can become a 'strategic substitute' for antitrust policy: lowering barriers on the way of imports can result in lower domestic prices for them.

There is ample empirical evidence that the easing of trade restrictions has a disciplinary effect on the companies' pricing behaviour. Data on different countries and groups of goods for different periods help prove that the liberalisation of foreign trade leads to a decrease in the domestic price of goods, which approaches marginal production cost [11—14]. This correlation has been registered not only when studying average domestic prices, but also when analysing the data in the context of individual businesses [8]. The market effect has been proven to decrease in individual areas of the Swedish food industry, which was a result of the eased foreign trade restrictions due to the country's accession to the EU [16]. Russian scholars have also registered certain competitive effects within the national economy [2; 4]. In this study, I would like to focus on the regional aspects of the problem in question.

2. Foreign trade of the Kaliningrad region as compared to other constituent entities of the Russian Federation

The unique position of the Kaliningrad region is, on the one hand, a result of its geographical isolation from mainland Russia and proximity to European countries; on the other, it is defined by the region's status of a special economic zone, which enjoys a free customs regime. As expected, the combination of these factors should contribute to the active development of the region's foreign trade relations. Are there any differences at the level of the constituent entities?

¹ For more detail on the correlation between active and protective measure of competition policy and problems of coordinating the activities of structures responsible for the implementation of different instruments, see [1; 5].

To test the hypothesis that the region demonstrates a higher foreign trade development rate, let us analyse the data of the Russian Federal State Statistics Service (Rosstat). Since the development of foreign trade is largely affected by the gross output growth (as the potential for export, on the one hand, and actual demand, on the other), one should test the hypothesis that the foreign trade growth rate of the Kaliningrad region is above the average calculated for Russian regions with comparable GRP growth rates.

The calculations were performed using the data for all constituent entities of the Russian Federation for 1998—2011, which was determined by available statistical information. All in all, the results of comparisons (see fig.) prove the existence of a positive connection between the increase in output (income) growth in the region and the growth in trade. However, in the case of the Kaliningrad region, no advantages as to foreign trade development rate were identified in comparison to other Russian regions: the correlation between the indices is at the national average.

From the perspective of competitive effects of foreign trade, of special interest is import activity. The free customs zone regime introduced in the region in 1996 and effective until 2016 creates incentives to import goods to the Kaliningrad region. Moreover, in the case of the import of intermediate goods and production of finished goods in the region (which involves the change of the industry classification code), no customs duty is charged on such goods when transported to other Russian regions². Thus, it is expected that the Kaliningrad region will demonstrate one of the national lowest export/import ratios³.

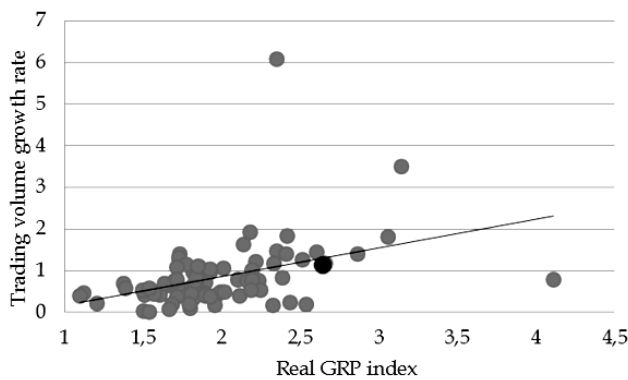


Fig. The ratio between the Real GRP index in constant prices and the increase in trade rate broken down by constituent entities, 1998—2011 (the Kaliningrad region is shown in black)

The calculations prove it to be true; if, in 2000, the value of this ratio for the Kaliningrad region was the lowest nationwide, in 2001, it ranked 6th (Table 1). The reasons behind it can be different, including the relevant decrease in the export potential of other regions and/or emergence of favourable import conditions in them.

² See.: Governmental Decree No 171 of March 30, 2006. [e-resource]. Accessed through the ConsultantPlus legal information database.

³ The index is calculated as ration between trade surplus and total imports.

Table 1

**Ten constituent entities of the Russian Federation
with the lowest export/import ratio, 2011**

Constituent entity	Export/import ratio,%	
	2011	2000
Pskov region	–95	39
Kaluga region	–95	–34
Republic of Kalmykia	–92	314
Republic of Adygea	–92	–68
Karachay—Cherkes Republic	–88	13
Kaliningrad region	–88	–94
Moscow region	–88	–1
Republic of Dagestan	–87	466
Kabardin-Balkar Republic	–86	–37
Tambov region	–86	–28

Source: calculated by the author according to the Rosstat data.

3. Russian or European prices?

Low import barriers (explained not only by import duty concessions but also small distances to the borders with the European countries of the Baltic region) should exert pressure on regional prices of goods, especially those competing with their imported analogues. In order to answer the question about the existence and significance of pricing effects resulting from the special position of the Kaliningrad region, let us analyse the Rosstat and Eurostat data.

The available statistical information offers data on monthly consumer price indices for 2005—2011. Of interest is the index dynamic in the Euro-zone (EU-17) and the Baltic neighbours of the Kaliningrad region — Lithuania, Latvia, Poland, and Estonia. I will conduct a correlation analysis to answer the question as to the dynamic of which prices — Russian or European ones — have greater effect on the changes in consumer prices in the given constituent entity (Table 2)⁴. I will consider the correlation between single instances of price growth and the correlation between the CPI of the Kaliningrad region and other territories in comparison to the previous period (1 year lag). It is supposed that lagging price adjustment takes place in the latter case.

These data do not suggest that European prices have a more significant effect on the dynamic of customer prices in the Kaliningrad region than Russian ones. A shortcoming of this analysis is a high level of price data aggregation, which results in mixing up the effects of prices of tradable and untradeable, exported and imported goods and services. The analysis below aims to assess the relevant sensitivity of regional prices of certain goods to the changes in corresponding Russian and European prices.

⁴ The correlation coefficient does not show the cause-and-effect dependence between prices observed on different territories. However, in this analysis, I assume that it is more probable that the Kaliningrad prices are determined by those of ‘the rest of the world’ (in view of the trade flow direction, it is, first of all, Russia and the EU) rather than vice versa.

Table 2

**Correlation between monthly consumer price indices
in selected countries and the Kaliningrad region**

Country	Kaliningrad region	
	Single price change	1 period lag
Russian Federation	0.81	0.72
Estonia	0.15	0.10
Latvia	0.22	0.24
Lithuania	0.15	0.19
Poland	0.07	0.06
Eurozone (EU-17)	−0.01	−0.04

Source: calculated by the author according to the Rosstat and Eurostat data.

As the initial database, the calculation uses the producer's monthly prices of five goods imported by Russia: meat (beef), cooking oil, chocolate, footwear, and motor cars. The data were available for the following territories: the North-Western Federal District, the Russian Federation and the Eurozone (EU-17) for 2000—2013.

The analysis methodology is based on the econometric estimation of time-series interrelation. The estimated regression model is as follows:

$$\ln P_{it}^{C3} = c + \alpha_1 \ln P_{it}^{RU} + \alpha_2 \ln P_{it}^{EC} + \varepsilon_i,$$

where P_{it}^{C3} , P_{it}^{RU} , P_{it}^{EC} are average prices of a commodity i at the moment t in the North-Western Federal District of Russia and the Eurozone respectively.

The estimation of slope coefficient α_1 and α_2 is the estimation of the explained variable according to the following independent variables:

$$\frac{\partial \ln P_{it}^{C3}}{\partial \ln P_{it}^{RU}} = \frac{\ln(P_{i1}^{C3}/P_{i0}^{C3})}{\ln(P_{i1}^{RU}/P_{i0}^{RU})} = \frac{\ln\left(1 + \frac{\Delta P_i^{C3}}{P_{i0}^{C3}}\right)}{\ln\left(1 + \frac{\Delta P_i^{RU}}{P_{i0}^{RU}}\right)} \cong \frac{\Delta P_i^{C3}/P_{i0}^{C3}}{\Delta P_i^{RU}/P_{i0}^{RU}} = \hat{\alpha}_1;$$

$$\frac{\partial \ln P_{it}^{C3}}{\partial \ln P_{it}^{EC}} = \frac{\ln(P_{i1}^{C3}/P_{i0}^{C3})}{\ln(P_{i1}^{EC}/P_{i0}^{EC})} = \frac{\ln\left(1 + \frac{\Delta P_i^{C3}}{P_{i0}^{C3}}\right)}{\ln\left(1 + \frac{\Delta P_i^{EC}}{P_{i0}^{EC}}\right)} \cong \frac{\Delta P_i^{C3}/P_{i0}^{C3}}{\Delta P_i^{EC}/P_{i0}^{EC}} = \hat{\alpha}_2.$$

To eliminate the problem of non-stationary time-series, the analysis is conducted for the first-difference of variables (price growth rates shown in euros), which retains the economic meaning of slope coefficient estimation as assessments of price elasticity on the assumption of their stability in time. Thus, the analysis tests the hypothesis of the interconnection between short-term price shocks.

The coefficient of independent variable correlation is given for each commodity under consideration in Table 3. In all cases, these coefficients are rather low (less than 0.8); therefore, regressors can be simultaneously introduced into a regression equation.

Table 3

Coefficient of correlation of Russian and European price growth rates for the goods under consideration

Meat	Cooking oil	Chocolate	Footwear	Motor cars
0.408	0.465	0.021	−0.038	0.008

Source: calculated by the author according to the Rosstat and Eurostat data.

To identify the features of individual effects, one performs an assessment of fixed (FE) and random (RE) effects of the form:

$$\text{FE: } \ln P_{it}^{C3} = c_i + \alpha_1 \cdot \ln P_{it}^{RU} + \alpha_2 \cdot \ln P_{it}^{EC} + \varepsilon_{it}, \quad E(c_i, \varepsilon_{it}) \neq 0;$$

$$\text{RE: } \ln P_{it}^{C3} = c_i + \alpha_1 \cdot \ln P_{it}^{RU} + \alpha_2 \cdot \ln P_{it}^{EC} + \varepsilon_{it},$$

$$c_i = c + u_i, \quad E(u_i, \varepsilon_{it}) = 0.$$

The results for the generalised assessment of the regression model coefficients are given in Table 4.

Table 4

The assessment of elasticity of producer's prices for certain goods in North-West Russia according to their Russian and European prices *

Index	Pool (absence of individual effects)	FE (fixed effects model)	RE (random effects model)
Constant	0.316 (0.880)	—	—
Estimation of Russian price elasticity, α_1	0.274 (0.078)	0.274 (0.078)	0.274 (0.078)
Estimation of European price elasticity, α_2	0.418 (0.884)	0.368 (0.894)	0.400 (0.887)
Adjusted R-squared	0.018	0.020	0.018
F-statistic	6.508	2.997	6.493
Prob (F-statistic)	(0.002)	(0.007)	(0.002)

* The explained variable is the producer's price growth rate for certain goods in the North-Western Federal District; number of observations: 587.

Source: calculated by the author according to the Rosstat and Eurostat data.

All in all, regressions are statistically significant; however their explanatory power is rather low. It indicates that regression models require a more accurate specification. Regardless of the specification, only the hypothesis of the influence of Russian price growth rate on short-term price changes in the North-Western Federal District is not rejected: the assessment of the corresponding elasticity coefficient is statistically significant in all cases and equals 0.274.

In all the considered models, the assessment of the coefficient with the European price growth rate is positive and exceeds the Russian price coefficient in absolute magnitude. However, it is not statistically significant, which does not make it possible to reject the hypothesis that this coefficient equals zero. The result obtained suggests that the producer's prices in the North-Western Federal District — in the case those of certain goods — are more sensitive to short-term changes in Russian than European prices. However, this conclusion is worthy of a more detailed further research.

4. The level of consumer prices in the Kaliningrad region

The second (and maybe even more important from the perspective of the competitive effects of foreign trade) expected feature of regional pricing relates to their absolute level. One can expect that the prices of consumer goods (first of all those imported or competing with imported ones) are lower in the Kaliningrad region than in other less distant regions of Russia due to the following reasons:

- comparatively low cost of imported goods transportation (for instance, import duties) included in the price;
- higher level of international competition (the results of theoretical modelling prove that it can also affect the prices of traditionally exported goods).

To test this hypothesis, let us analyse the data on the cost of a fixed set of consumer goods and services in 2011. In view of the vast territory of Russia and dissimilar economic conditions in its regions, price levels are compared only among the regions of the North-Western Federal District.

To compare general levels of consumer prices in the regions, the procedures were as follows:

- the median price level among the considered regions was identified for each month;
- the ratio between the price and the median level calculated at the previous stage was found for each month and region;
- the median value was obtained for each region according to the calculations of relevant price levels performed at the previous stage.

The total indices characterising the relevant levels of consumer prices of basic tradable goods, as well as individual features of the total level of income and import intensity (as an indirect indicator of the level of foreign competition) in the regions of the North-Western Federal District are given in Table 5. All in all, these data support the hypothesis that, against the background of comparable levels of per capita income (which reflects actual demand in the region), greater import intensity also contributes to a lower level of consumer prices. It is important to make one reservation: the territorial proximity of the regions under consideration partially neutralises the effect

of growing prices for imported products through transportation costs, which increase with the distance from the border — an opposite of the foreign price competition effect.

Table 5

Some characteristic of the regions of the North-Western Federal District, 2011

North-Western Federal District	Relevant price level	GRP per capita, thousand roubles	Export import ratio, %
Murmansk region	1.206	329	395
Komi Republic	1.128	485	846
Arkhangelsk region	1.095	361	2420
Saint Petersburg	1.011	421	–35
Republic of Karelia	1.01	223	357
Vologda region	0.992	264	537
Leningrad region	0.984	326	107
Kaliningrad region	0.982	244	–88
Pskov region	0.884	153	–95
Novgorod region	0.881	236	128

Sources: calculated by the author according to the Rosstat data

* * *

The results of the analysis make it possible to draw the following conclusions.

The status of the special economic zone and the unique geographical position of the Kaliningrad region do not contribute to increased foreign trade growth rates, but result in a shift of its structure towards import of goods thus creating additional competitive pressure on domestic markets.

The analysis did not support the hypothesis about the significant influence of European prices on the regional consumer price index and producer's prices of individual imported goods. This conclusion, however, will require a more detailed description in further studies aimed at identifying unique regional factors affecting short-term price shocks.

Indirect evidence of competitive effects of foreign trade was found in the course of a comparative analysis of prices in the regions of the North-Western Federal District: in the Kaliningrad region, the cost of a fixed set of consumer goods and services is lower than the average level of per capita income.

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